

REMARKS

Claims 1, 3 to 5, 7, 8, 10, 11 and 13 to 22 are pending.
Claim 11 is cancelled.

No claims are allowed.

1. Claims 1 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Weigand et al. (U.S. Patent No. 4,023,572). Weigand et al. relates to a milling tool 100 for preparing a joint socket in the prosthetic replacement of a joint. The milling tool 100 comprises a hollow, hemispherical body 101 having a rim 102 surrounding a central hemispherical cavity 103. The body comprises a plurality of outwardly extending cup-shaped projections 104 having milling blades formed in the leading edge thereof. When the tool 100 is rotated, the milling blades 105 mill tissue. The subsequently milled tissue moves into the cavity 103 through holes 107. One structure for securing the milling tool 100 to a support structure for rotation is by a mounting rod 110 having its opposite ends secured to holes 111 in the body 101.

Independent claim 1 has been amended to set forth that the interface structure comprises at least one cross-bar fixedly attached to the inside of the dome at intermediate locations between a plane at a theoretical equator of the hemispherical dome and the dome apex. This positions the at least one cross-bar inwardly from the equatorial edge and within the dome.

On the other hand, careful inspection of Weigand et al. shows that the body 101 is, in fact, not completely hemispherical. At the location where the mounting rod 110 connects to the body 101 at holes 111, the body 101 has a cylindrical shape. This is clearly shown in Figs. 2 and 3, for example. The dome bodies illustrated in Figs. 12 to 16 comprising a support 220 with a pair

of radially extending pins 227 that are received in openings also reside in a cylindrical portion of the body.

During a surgical procedure, it is important to use a completely dome-shaped reamer. As the surgeon is reaming an acetabulum in preparation for a hip replacement, the rotating reamer is not only advanced forward in an axial direction, but there likely is some degree of "scooping" motion imparted to the reamer. That is to ensure that the prepared socket is as nearly rounded for receipt of the implant as possible. A reamer with a cylindrical edge would tend to provide a wider opening than is needed, and one that wasn't completely hemispherical. After the implant is in place, there would be a gap between the implant and the reamed socket as a result of the cylindrical edge on the Weigand et al. reamer. This space must be filled in with bone shavings and the like and represents an area where an implant failure could potentially occur. It is desirable to have very little gap between the bone and the implant so that the implant makes as much contact with bone as possible. This contributes to the ultimate success of the implant surgery.

Thus, it is the applicants' position that the cited Weigand et al. patent does not teach an interface structure comprising at least one cross-bar fixedly attached to the inside of the dome at intermediate locations between the theoretical equilateral plane of the hemispherical dome and the apex thereof. In Weigand et al., the opposed ends of the mounting rod 110 connect to a cylindrical portion of the prior art "dome-shaped" reamer.

Accordingly, amended independent claim 1 is neither anticipated by Weigand et al., nor would it have been obvious in light of its teachings. Claim 7 is patentable as hinging from an allowable base claim.

Reconsideration of this rejection is requested.

2. Claims 3 to 5, 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weigand et al., as applied to claim 1, in view of McCallum et al. (U.S. Patent Pub. No. 2003/0220647).

The McCallum et al. publication relates to a low profile acetabular reamer comprising an actuate convex surface generally in the shape of the central portion of a hemispherical shell. The central portion has a first open side 13 and a second open side 14. Nonetheless, these claims each depend from amended independent claim 1, which is allowable over the primary Weigand et al. reference. The addition of the secondary McCallum et al. publication does not destroy that allowability. Accordingly, claims 3 to 5, 8 and 10 are patentable as hinging from an allowable base claim.

Reconsideration of this rejection is requested.

3. Claim 11 is rejected under 35 U.S.C 103(a) as being unpatentable over Weigand et al., as applied to claim 1, in view of Sayler (U.S. Patent No. 6,250,858).

Sayler relates to a tool driver 10 comprised of a shaft 12 having a boss 18 at end 14. As described at column 4, lines 46⁺, the boss 18 has an exterior distal surface 29 and a groove 30 cut therein which extends transversely of the shaft 12 across end 14 between diametrically opposite portions of boss 18. A latch actuator 40 is slideable axially along the shaft 12 between the boss 18 and a ring 26. The latch actuator 40 is resiliently urged against boss 18 by a spring 48. Both the boss 18 and the boss end 42 of the actuator 44 have latch slots 56 formed inwardly therein. Latch pieces 70 are positioned in the latch slots 56. The latch pieces 70 comprise hook portions 80 that extend into the groove 30 cut into the boss 18. That way, axial movement of actuator 40 along shaft 12 causes the latch pieces 70 to move from an "at rest" or extended position (Figs. 3, 6 and 8) with their hook

portions 80 extended into groove 30 to a retracted position 96 (Fig. 4) in which the latch members are completely within boss portion 18 and not within the groove 30. Each of the rotary tools has a mounting bar 114.

As described at column 6, line 30+, "[i]n the specific embodiment illustrated in FIGS. 9 and 14, latch pieces or pins 138 are used exclusively to keep the tools 142 or 144 from rotating independently of the tool driver 10, 120 . . ." In all other versions of the tool driver 10, 120, "latch pieces 70 are not relied upon to prevent rotation between the tool piece and the tool driver as the bosses 18, 122 fit into a complementary bottom opening 128 or have a bar 114 which fits within groove 30 and the engagement between the bar 114 and the sides 34, 36 of the groove 30 or the engagement between the boss 122 and the bottom opening 128 [of the tools 127, 129] is used to prevent the rotation of the tool relative to the tool driver 10, 120 . . ."

The point is that the "boss" described by the prior art Saylor patent is not a portion of the interface structure of a reamer as set forth in claim 11. Instead, it is a portion of the shaft 12 of the tool driver 10, 120 that is attached to a reamer by the latch pieces moving from an extended position with their hook portions 80 engaging the reamer to a retracted position disengaged from the reamer. This movement between the extended and retracted positions is along the groove 30 in boss 18.

In that respect, the subject matter of dependent claim 11 is neither anticipated by any one of the cited prior art references, nor would it have been obvious in light of their combination.

Reconsideration of this rejection is requested.

4. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weigand et al., as applied to claim 1, in view of Nordin (U.S. Patent No. 3,847,154). Independent claim 13 has been amended in a similar manner as independent claim 1. As previously discussed, in their presently amended forms, these independent claims are allowable over the Weigand et al. patent. The Nordin patent teaching an angled drive shaft does not destroy that allowability.

Reconsideration of this rejection is requested.

5. Claims 14 to 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lechot (U.S. Patent No. 6,129,732) in view of Weigand et al.

Lechot teaches a surgical reamer comprising a hemispherical cap 1 having cutting edges. "The center of the base of cap 1 is occupied by a circular steel disc 3 in which four arms 4, arranged in a cross, are radically attached by embedding, the other ends being welded to the cap 1." (See column 2, lines 16 to 21).

Independent claim 14 has been amended to set forth that the at least two radial spokes have proximal ends attached to the distal end of the shaft and distal spoke ends spaced from an inner surface of the dome. This reamer construction is shown in Fig. 5 of the application. It is an improvement over the prior art for at least the reason that the claimed interface structure gives the physician improved access to the interior of the reamer dome. It is common practice in hip replacement surgery to clean the bone fragments and shavings out of the reamer for re-use in packing around the prosthetic implant. Also, in re-usable reamers, this claimed structure makes it easier for subsequent sterilization.

Accordingly, amended independent claim 14 is neither anticipated by either one of Lechot and Weigand et al., nor would

it have been obvious in light of their combination. Claims 15 to 17 are patentable as hinging from an allowable base claim.

Reconsideration of this rejection is requested.

6. Claims 18 to 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lechot in view of Weigand et al. as applied to claim 14, in further view of McCallum et al. These claims each depend from amended independent claim 14 which is believed to be patentable over Lechot in view of Weigand et al. The McCallum et al. publication does not teach "an interface structure comprising a shaft having a proximal end secured to an inner surface of the dome at the apex and extending to a distal end supporting at least two radial spokes extending therefrom in a radial spokes plane within the dome at an intermediate location between the theoretical equatorial plane of the hemispherical dome and the apex, wherein each radial spoke has a proximal end attached to the shaft and a distal spoke end spaced from an inner surface of the dome", as set forth in amended independent claim 14. Therefore, these claims are patentable as hinging from an allowable base claim.

Reconsideration of this rejection is requested.


7. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lechot and Weigand et al. in view of McCallum et al. as applied to claim 14, and further in view of Nordin. Independent claim 22 has been amended in a similar manner as independent claim 14. As previously discussed, in their presently amended forms, these independent claims are allowable over the Lechot, Weigand et al. and McCallum et al. patents. The Nordin patent teaching an angled drive shaft does not destroy that allowability.

Reconsideration of this rejection is requested.

8. It is noted that Fig. 7 lacks numerical designation "375", which is described in the published application in paragraph [0021]. A marked up copy of this figure along with a replacement drawing sheet accompany this amendment.

It is believe that claims 1, 3 to 5, 7, 8, 10 and 13 to 22 are in condition for allowance. Notice of Allowance is requested.

Respectfully submitted,


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